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CHAPTER VIII

# Microeconomic effects of the trade regime

One can make a number of qualitative predictions from economic theory about the effects of a trade regime such as that of Turkey. (1) There are bound to be differences among industries in the social return to factors of production employed in them. (2) The criteria for obtaining import licenses and permission to import capital goods will lead to differences in efficiency among firms. (3) The method of allocating import licenses is likely to lead to underutilization of capacity and general excess costs of production. (4) Subsidizing capital goods imports will induce substitution of capital for labor, at least for firms receiving permission to import capital goods. This will have implications for employment and income distribution.

In this chapter an attempt is made to ascertain the quantitative importance of each of these effects in Turkey during the latter half of the 1960's. That period represents a time when the trade regime was fairly stable (although the premium on import licenses was increasing over time) and when Turkey was in Phase II. It is also a period for which data are available to a more satisfactory extent than is true for the earlier experience with Phase II in the 1950's.

In Section I, estimates of Domestic Resource Costs (DRCs) for various activities are presented to provide evidence as to the variation in economic costs arising between industries and firms. In Section II the excess costs of production associated with the system are evaluated. In Section III the effects of the trade regime upon employment, factor proportions and income distribution are examined.

This chapter is concerned with the effects of the trade regime and its interaction with domestic policies upon individual firms and industries. In Chapter IX estimates will be provided of the macroeconomic effects of the trade regime upon economic growth.

## *I. Domestic resource costs*

From 1953 until the time of writing, there have consistently been differential incentives to producers within Turkey. The result has been biased incentives, not only away from export activities but also among import-competing

activities. During the 1950's most of the differentials in incentives were the outcome of the measures taken by the government in response to the excess demand for imports that resulted from maintenance of a fixed exchange rate in the presence of inflationary pressures. After 1962 the import regime was much more consciously geared to fostering import-substitution. Although the average differential between export and import EERs remained approximately constant over the entire period, variations in nominal and effective rates of protection among different activities increased considerably in the 1960's. Increased use of such instruments as the "Prohibited List" meant that the protection afforded by duties and surcharges, as in the 1950's, became relatively less important than other protective devices. By the late 1960's the premia on import licenses varied enormously between commodity categories.

*Differences in costs between industries and firms*

One would expect significant disparities in the economic costs of various activities to result from such highly protective measures. Two sorts of disparities can be distinguished: (1) production would have higher opportunity costs in some industries than in others; and (2) firms within the same industry might produce at varying levels of efficiency.

Differences in opportunity costs between industries can result, with protection, because of the differential degree of total protection afforded to different industries. With differential protective levels, all the factors that determine a country's comparative cost structure, the capital and skill-intensity of the industry, the industry's location relative to the source of its inputs and their transport costs, technology, scale, and so on, affect the economic costs of the industry.

Differences in efficiency between firms in the same industry will not result from protection if the means used to grant protection enable competition among firms and expansion of highly profitable firms. In Turkey, however, the nature of quantitative restrictions and other controls both prevented competition and restricted the ability of firms to expand when they wished: (1) the availability of imported inputs limited output for those firms requiring imported inputs on the quota lists – which included assemblers' quotas and manufacturers' quotas (see below); (2) most new investments (as seen in Chapter VI) required imported capital goods which were subject to quota allocation and required the SPO's permission.[1]

1. Not only was SPO approval generally required, by the late 1960's, but the value of the investment incentives – postponement or reduction of duties upon imported capital goods – was so high that few firms would carry out their investment plans without receiving the SPO's dispensation from the duties.

Assemblers' and manufacturers' quotas were used to allocate imports of intermediate goods in most of the new import-substituting industries. These quotas, allocated on a firm-specific basis, were not item-specific but user-specific. By 1970 there were thirteen assemblers' quotas (covering tractors, vehicles, radios, typewriters and other import-substituting assembly production) amounting to $11.9 million, and forty-one manufacturers' quotas (covering production of such items as tires, transformers, washing machines, industrial furnaces, paints, light bulbs, electric motors, and so on) whose value was $10.4 million. All import licenses under these quotas required Ministry of Industry certificates for firm-specific allocations.[2]

Thus for firms requiring imported inputs subject to quota allocations there was little opportunity for competition, since output was virtually determined by the size of the quota allocation. Similarly, expansion of low-cost firms could not be undertaken automatically and was generally disapproved if excess capacity existed in the industry or if it was anticipated that demand would not expand by enough to warrant additional capacity. Even when expansion of an industry was deemed warranted, attempts were made to be "fair" and to allocate investment-goods import licenses *pro-rata* with applications for expansion. Since intermediate goods import licenses were allocated in proportion to firms' capacities,[3] there were incentives for all firms in the industry to apply for investment goods import licenses, for the penalty for not doing so was likely to be a reduced share of the quota allocation.

*Measuring economic costs*

Under optimal resource allocation, all industries and firms in a country will produce to the point where the domestic marginal rate of transformation (DMRT) between any two commodities equals the international marginal rate of transformation (IMRT). In the absence of monopoly power in international trade, and ignoring intermediate goods for the moment, the IMRT equals the ratio of international prices between pairs of commodities. In the absence of distortions in the domestic market, the ratio of domestic prices would equal the DMRT.

The domestic price ratio cannot be used in the presence of distortions, and an alternative measure, domestic resource cost (DRC), provides a better indicator. It is designed to provide an empirical estimate of the DMRT by adjusting domestic prices to reflect the opportunity costs of producing various commodities. Thus elements of monopoly rent must be removed from domestic prices when there are domestic monopolies. When there are distortions in

2. *Official Gazette, No. 13391,* January 5, 1970.
3. See Section II, below.

factor markets, adjustments must be made so that the social opportunity costs (shadow prices) of factors of production employed in each activity are reflected.

To allow for the presence of intermediate goods, the DRC measure (as with domestic and international price ratios under perfect markets) becomes a value-added measure. Thus the DRC of a given activity reflects the DMRT of producing value-added.

In empirical measurement, DRCs are computed per dollar of international value-added, and the IMRT between pairs of activities is thus one. Inequalities in DRCs therefore reflect the facts that DMRTs and IMRTs are unequal and that there is a consequent non-optimal resource allocation. The wider the difference between DRCs, the greater the disparity between IMRTs and DMRTs. Thus if one activity has a DRC twice as high as another, the implication is that had the first activity not been undertaken and had the resources been employed in the second activity, these resources would have produced twice as much foreign exchange earning or saving as under the existing allocation.[4]

A crucial assumption is that industries or activities could expand or contract at relatively constant costs. While such an assumption is sometimes unwarranted, it is valid for data from plants in developing countries where the investments could be duplicated and where the unit of observation is an integral investment project.

Of course there are numerous empirical difficulties that lead to imperfection in the measurement of DRCs. Even in a country with perfectly competitive markets and no impediments to international trade, one would not expect exact equality of all DRCs at a point in time, for dynamic adjustments could be taking place and errors in measurement could be made. But in such a country one would not be able to observe persistent wide differences in DRCs, since competition would provide a mechanism where low-cost firms could expand and high-cost firms would contract.

### *Sources of DRC data for Turkey*

Estimates of Turkish DRCs in the late 1960's are available from several sources. The data are presented in Table VIII-1, but before analyzing them, differences between the methods of computations used in the different

4. For a fuller exposition of the DRC measure and its properties, see Anne O. Krueger, "Evaluating Restrictionist Trade Regimes: Theory and Measurement," *Journal of Political Economy,* January/February 1972; and Michael Bruno, "Domestic Resource Costs and Effective Protection: Clarification and Synthesis," *Journal of Political Economy,* January/February 1972.

Table VIII-1
Summary of estimates of DRCs and sectoral DRCs (TL per dollar)

| Sector | Item | Date | DRC | Sector DRC Mean | Sector DRC Variance |
|---|---|---|---|---|---|
| Food and beverages | | | | 14.11 | 46.06 |
| | Food sector average | 1968 | 14.76 | | |
| | Food sector excluding tea and sugar | 1968 | 10.17 | | |
| | Alcoholic beverages | 1968 | 24.66 | | |
| | Dried figs | 1968 | 8.01 | | |
| | Raisins | 1968 | 7.92 | | |
| | Hazelnuts | 1968 | 8.55 | | |
| | Canned food | 1968 | 17.55 | | |
| | Olive oil | 1968 | 11.34 | | |
| | Tea | 1968 | 16.11 | | |
| | Sugar | 1968 | 31.50 | | |
| | Meat | 1968 | 10.17 | | |
| | Tomato paste | 1965 | 13.40 | | |
| | Tomato canning | 1969 | 9.30 | | |
| Textiles | | | | 13.48 | 43.77 |
| | Sector average | 1968 | 12.78 | | |
| | No. 20 yarn | 1968 | 9.20 | | |
| | Striped cotton fabric | 1968 | 9.93 | | |
| | Export cloth | 1968 | 12.17 | | |
| | Silk printing fabric | 1969 | 3.30 | | |
| | Cotton textiles | 1968 | 12.15 | | |
| | Woolen textiles | 1968 | 14.94 | | |
| | Cotton fiber | 1968 | 8.55 | | |
| | MA 88 cloth | 1968 | 21.17 | | |
| | Serge cloth | 1968 | 22.07 | | |
| | Canvas top for vehicles | 1966 | 1.79 | | |
| | Nylon textiles | 1966 | negative | | |
| | Air filter for vehicle | 1966 | 20.27 | | |
| | Particle board | 1969 | 12.50 | | |
| Forest products | | | | 10.44 | n.a. |
| | Sector average | 1968 | 10.44 | | |
| Leather products | | | | 10.24 | n.a. |
| | Driver seat for vehicle | 1966 | 10.24 | | |
| Paper products | | | | 23.69 | 67.40 |
| | Sector average | 1968 | 15.48 | | |
| | Kraft paper | 1965 | 31.90 | | |

Table VIII-1 (continued)

| Sector | Item | Date | DRC | Sector DRC Mean | Sector DRC Variance |
|---|---|---|---|---|---|
| Rubber products | | | | 45.59 | 890.49 |
| | Sector average | 1968 | 15.93 | | |
| | Hoses for vehicles | 1966 | 78.49 | | |
| | Weatherstripping for vehicles | 1966 | 23.68 | | |
| | Tires 1 | 1966 | 13.45 | | |
| | Tires 2 | 1966 | 26.98 | | |
| | Truck tires | 1965 | 81.40 | | |
| | Passenger tires | 1965 | 79.20 | | |
| Plastic | | | | 37.05 | 843.90 |
| | Plastic | 1965 | 66.10 | | |
| | Plastic bags | 1969 | 8.00 | | |
| Chemicals | | | | 14.56 | 16.92 |
| | Sector average | 1968 | 14.40 | | |
| | Rayon | 1968 | 16.11 | | |
| | Synthetic fiber | 1968 | 10.35 | | |
| | Nylon | 1965 | 11.00 | | |
| | Sodium phosphate fertilizer | 1965 | negative | | |
| | Ammonium nitrate fertilizer | 1965 | negative | | |
| | Citric acid | 1969 | 11.00 | | |
| | Paints | 1966 | 22.96 | | |
| | Vehicle battery | 1966 | 16.13 | | |
| Cement | | | | 14.80 | 6.26 |
| | Sector average | 1968 | 13.68 | | |
| | Factory 1 | 1966 | 15.71 | | |
| | Factory 2 | 1966 | 16.75 | | |
| | Factory 3 | 1966 | 16.36 | | |
| | Cement plant | 1969 | 11.50 | | |
| Stone and clay products | | | | 10.62 | n.a. |
| | Tiles | 1968 | 10.62 | | |
| Glass and ceramics | | | | 10.80 | 28.34 |
| | Sector average | 1968 | 11.52 | | |
| | Glass windshield | 1966 | 8.30 | | |
| | Car outside mirror | 1966 | 21.76 | | |
| | Rear view mirror | 1966 | 4.91 | | |
| | Glassware | 1965 | 7.90 | | |
| | Windowglass | 1965 | 10.40 | | |

Table VIII-1 (continued)

| Sector | Item | Date | DRC | Sector DRC Mean | Sector DRC Variance |
|---|---|---|---|---|---|
| Iron and steel | | | | 13.68 | 29.70 |
| | Sector average | 1968 | 16.47 | | |
| | Billets | 1968 | 15.93 | | |
| | Rods | 1968 | 20.43 | | |
| | Tin plate | 1968 | 13.95 | | |
| | Grey iron castings | 1969 | 2.80 | | |
| | Steel billets | 1968 | 12.50 | | |
| Iron and steel products | | | | 93.87 | 43,737.12 |
| | Vehicle body | 1966 | 15.79 | | |
| | Springs | 1966 | 23.67 | | |
| | Car exhaust system | 1966 | 17.43 | | |
| | Car frame | 1966 | 15.92 | | |
| | Iron products factory | 1966 | negative | | |
| | Soft drink caps | 1969 | 49.90 | | |
| | Vehicle fenders | 1966 | 13.90 | | |
| | Tail gate | 1966 | 55.97 | | |
| | Tail gate chain | 1966 | 11.10 | | |
| | Hinges | 1966 | 15.17 | | |
| | Bolts and nuts | 1969 | 719.80 | | |
| Other metal products | | | | 14.17 | 22.89 |
| | Vehicle gas tank | 1966 | 15.00 | | |
| | Vehicle tools | 1966 | 12.12 | | |
| | Brake drum | 1966 | 15.63 | | |
| | Hand brake assembly | 1966 | 15.00 | | |
| | Windshield frame | | 16.94 | | |
| | Copper products | 1966 | 23.28 | | |
| | Radiator | 1965 | 14.00 | | |
| | Radiator | 1966 | 17.03 | | |
| | Brake and clutch lining | 1969 | 6.60 | | |
| | Water and gas meters | 1969 | 6.10 | | |
| Machinery and parts | | | | 21.81 | 139.37 |
| | Sector average | 1968 | 13.60 | | |
| | Vehicle wiring harness | 1966 | 7.40 | | |
| | Vehicle lamps | 1966 | 7.86 | | |
| | Horn assembly | 1966 | 15.00 | | |
| | Cooling unit | 1965 | 21.40 | | |
| | Electric motor | 1965 | 31.90 | | |
| | Electric cables | 1965 | 46.00 | | |
| | Refrigerator | 1968 | 15.00 | | |
| | Refrigerator | 1969 | 27.70 | | |
| | Washing machine | 1969 | 32.30 | | |

Table VIII-1 (continued)

| Sector | Item | Date | DRC | Sector DRC Mean | Sector DRC Variance |
|---|---|---|---|---|---|
| Transport equipment | | | | 27.78 | 278.88 |
| | Assembler 1 | 1966 | 26.42 | | |
| | Assembler 2 | 1966 | 55.48 | | |
| | Assembler 3 | 1966 | 14.74 | | |
| | Motorcycle engine | 1969 | 14.50 | | |

Note: A negative DRC means that the foreign-exchange cost of the inputs (direct and indirect) exceeds the foreign-exchange value of the output.

Sources: Data for 1965 are from Anne O. Krueger, "Some Economic Costs of Exchange Control: The Turkish Case," *Journal of Political Economy*, October 1966. Data indicated as 1966 are from data compiled by the USAID Mission, Ankara, in the summer of 1966. Data for 1968 are from: Necati Özfirat, "Competitive Ability in the Manufacturing Industries and the Structure of Cost," *Pub. No. SPO 754, Economic Planning 267, SPO.* Data for 1969 are from Anne O. Krueger, *Turkish Domestic-Foreign Price Relationships, 1969*, mimeograph (Ankara), 1969.

sources should be mentioned. The 1965 and 1969 data are similar in that all estimates are based on the assumption that firms operate at full capacity, and that all capital – equity plus debt – earned a shadow return of 20 per cent. The 1969 data, however, differ from the 1965 data in two regards: (1) They were all drawn from loan applications which had been approved and where one criterion for extending a loan was that the DRC not be too high. Thus there is something of a downward bias in the 1969 estimates. By contrast, the 1965 data consisted both of loan applications at a time when no such criterion was used and of existing firm experience (projected to full capacity utilization) and loan project information. (2) The 1969 data did not contain a breakdown of the firms' domestically purchased inputs into tradeable and home goods whereas the 1965 data did. For 1969, therefore, DRCs were computed on three alternative assumptions: a) all purchased inputs were tradeable at TL 9=$1; b) all domestically purchased inputs were home goods; and c) all purchased inputs were tradeable at TL 15=$1. Assumption (c) is perhaps the most realistic, and the one used in the data for Table VIII-1. But it should be noted that the rank correlations between DRCs computed on the three alternative bases all exceeded 0.95. The only significant difference was that some 1969 observations indicated foreign exchange losses (negative foreign exchange saving) when computed on the basis of assumption (a).

Data for 1966 were obtained by USAID personnel in the summer of 1966 and are based upon interviews and questionnaires with over 150 Turkish

firms. These data were derived entirely from existing firms' actual operations. No adjustments were made for differing rates of return upon capital, varying degrees of capacity utilization, and the like. Thus the data really represent the TL value added at market prices divided by the foreign exchange saved or earned when direct and indirect utilization of foreign exchange in inputs is taken into account.

The 1968 data are also based upon actual operating experience. Their chief drawbacks are that no adjustment was made for varying profit rates and that indirect imports utilized in production were not subtracted from international value-added estimates. The net effect is probably to bias the 1968 estimates downward. For example, the refrigerator estimate for 1968 (under Machinery and Parts) is TL 15 per dollar and that for 1969 is TL 27.7 per dollar. Although inflation may have affected the estimates slightly, the 1968 estimate allowed a zero return on capital, and the 1969 estimate allowed a 20 per cent rate of return. Moreover, indirect imports used in production were netted out of international value added in the 1969 estimates and not in the 1968 ones. While there is no way of knowing whether the same refrigerator producer was evaluated in the 1968 and 1969 data, adjusting the 1969 data to a zero profit base and adding indirect imports into foreign exchange saved accounts for over 95 per cent of the difference between the two estimates of DRCs. It was not possible to contrast the sources of differences to the same extent in all other cases, but the relationships between the various sources of data generally appear consistent over the range of commodities observed.

*Variations in DRCs*

In Table VIII-1 the date after each activity denotes the source of the estimate, as indicated in the notes to the table. There is wide variation in DRCs among industries and activities. Despite the fact that the four sources did not provide estimates on an entirely comparable basis, all four sets of estimates show this wide variation.

The last two columns of Table VIII-1 provide an unweighted mean of all the estimates for each sector and the variance of DRCs around the sectoral means. The sectoral means and variances should be interpreted with extreme care, since negative DRCs (where the international value of the inputs exceeded the international value of the output) could not be included in the estimates. The chemicals sector, for example, has a relatively low mean DRC. Yet out of nine estimates for that sector, two activities showed negative international value-added. Because these two observations were not included in the computation of the mean and variance for chemicals, both numbers appear low. Similarly, the presence of an extreme observation, given the small number of activities for which estimates are available in each sector, seriously

influences the mean and variance. Thus iron and steel products contain nuts and bolts, which were computed to have a DRC of 791.80. The mean for the sector therefore is above all but that observation, although an iron products factory had a negative DRC in 1966 and was therefore excluded from the sectoral mean.

We now consider the evidence. DRCs for the food and beverage sector have been relatively low (with a few notable exceptions). If one assumes that TL 15 = $1 was close to an equilibrium exchange rate during the latter half of the 1960's, all subsectors except sugar, alcoholic beverages (which were a State Monopoly and whose DRC is therefore difficult to interpret since the 1968 estimates are not adjusted for different levels of profitability), tea and canned food were clearly export industries. The DRC for meat products should be especially noted. It is a sector in which Turkey probably has a vast unrealized export potential. There has been a sizeable, mostly illegal, export of meat products over Turkey's eastern border, and the Turkish internal price of meat is below the international price. Government policies aimed at keeping the domestic price of meat down have been a major factor in discouraging the development of meat exports.

In food products, as in other sectors, the variation in DRCs appears to be of about the same order of magnitude as the differences in incentives between export and import-competing producers. Thus figs, raisins, hazelnuts and tomato canning all had DRCs below ten while sugar (an import-substitution industry) had a DRC in excess of 30. The only DRC estimate in the food and beverage sector that appears inconsistent with the export-import-substitution generalization is that for canned food 1968. That estimate is well above those for tomato paste and tomato canning, which are the two predominant forms of food canning. Most observers believe that food canning is an industry in which Turkey has relatively low economic costs, and where exports could be developed profitably under an alternative trade regime. The cause of the high figure in this sample is not known, but it is possible that the 1968 estimate did not adjust for disparities between the domestic and international price of tinplate. For canning, the fact that domestically-produced tinplate was priced at about three times the world level effectively precluded the development of canned-food exports. It is also possible, of course, that a high-cost firm was the basis for the estimate of the canned food DRC.

Like the food sector, the textile sector appears generally to have relatively low DRCs, but there are several exceptions. The 1966 study indicated a negative foreign-exchange saving for nylon textiles, and both serge and MA 88 cloth had DRCs above TL 20 per dollar in 1968. The coexistence of low-cost and high-cost firms in the same sector is consistent with *a priori* expectations about the effects of the trade regime.

Other sectors, where there are very few observations but for which DRCs

appear to be reasonably low, are forest products, leather products, and stone and clay products. As seen in Chapter VII there is some independent evidence suggesting that these sectors may have considerable export potential, which tends to corroborate the low DRC estimates.

The picture is rather different on the import-substitution side. The iron and steel sector was generally high cost. In the 1968 study iron and steel was found to be the highest-cost sector. While some of the high costs may have been attributable to start-up activities of the industry, some of the firms in the sample had been operating for extended periods. Iron and steel products show the widest variation in DRCs. Many of the items included in that sector are parts and components for vehicles, but other items exhibit equally high variation. The bolts and nuts DRC is reflected in the sectoral average and variance. Even omitting bolts and nuts, however, the average DRC for iron and steel products is TL 24.3.

Machinery and parts, transport equipment, paper, plastic, rubber and chemicals are other sectors where many of the activities are import-substitution oriented. As can be seen, some DRCs have been negative, implying that there have been negative foreign exchange savings in import-substitution. That is especially true for fertilizer, where the transport cost of importing raw materials exceeds the transport cost of importing the finished product.

The wide variation in DRCs on the import-substitution side is indicative of the degree to which encouragement of import-substitution has been indiscriminate. Some activities clearly were economically sound investments, whereas others were extremely high cost. That happened not only between different production lines, but also in the same production line. Tires, within the rubber products sector, are a case in point. The two 1966 DRC estimates, made on a comparable basis, indicate a DRC of 13.5 for one firm and 27 for another. There can be little doubt that the production of tires at a DRC of 13.5 would have been economically justified and profitable under optimal resource allocation whereas production at a DRC of 27 would not have been. Yet under the trade regime and investment regulations both firms were able to survive.

Another factor should also be noted. Among the import-substitution activities, some would have been viable exports under appropriate incentives. Yet the high cost of inputs from other domestic industries (where importing the input was infeasible because of the "Prohibited List") effectively precluded the possibility of developing export markets. The cases of tinplate and canned food have already been cited, and there were many similar instances. Thus in some cases import-substitution was not only high-cost in itself, but it also had indirect costs, given the use of the "Prohibited List," in preventing the development of exports in other industries.

It is evident that under an alternative and economically more desirable set

of incentives Turkey could have achieved a considerable increase in net foreign exchange availability for the same level of investments and resources devoted to the manufacturing sector. The unweighted average of sectoral DRCs from the data in Table VIII-1 was TL 23.5 per dollar. A more selective import-substitution policy and increased incentives for efficiency resulting from competition could certainly have reduced the average substantially. Estimates of the increased output which could have been achieved will be presented in Chapter IX. They are based upon data from sectoral averages. When interpreting those results it will be important to bear in mind that the sectoral data themselves conceal a great deal of variation among subsectors and among firms.

## *II. Excess real costs of the system*

In addition to expecting a restrictionist trade regime to result in wide variations in costs of different activities, one would also anticipate that a system such as the Turkish would impose excess real costs on virtually all firms operating under the regime. Several types of excess costs are identifiable: (1) entrepreneurial time and energy; (2) additional clerical staff required to handle paperwork; (3) expenses, such as airplane trips to the capital, associated with obtaining import licenses; (4) costs associated with the effects of the regime on inventory levels; and (5) excess capacity resulting either from inability to obtain imports or from incentives to overbuild resulting from the trade regime.

The first three costs are extremely difficult to quantify, and their importance is hard to estimate. Entrepreneurship is generally regarded as a scarce resource in developing countries. If entrepreneurial energies and efforts are devoted to obtaining import licenses, the drain on the scarce resource clearly constitutes a cost of the import regime. Likewise, insofar as firms must hire additional bookkeepers, clerks and office staff to handle the paperwork associated with obtaining licenses, the firm's costs are increased by the import regime.

There is no evidence available with which to evaluate the magnitude of the costs incurred in obtaining import licenses. Even interviews failed to yield any firm estimates. Some businessmen stated that they would be willing to pay about 10 per cent above landed cost if items could be domestically produced, since they could save that much by avoiding the licensing process. However, there is clearly an important difference in the magnitude of cost-saving, when the source of supply of one item shifts from the foreign to the domestic market and when all items shift or when licensing procedures are simplified for all items.

The last two components of excess costs, inventory and underutilized capacity, can be evaluated to some extent. In this section, these two components are considered. It should be borne in mind, however, that the costs incurred in obtaining licenses are unknown, but certainly are of some importance.

*Excess inventory costs*

Incentives to hold large stocks of imported goods originated from several factors: (1) for Liberalized List goods there was uncertainty as to a) the length of delay in issuing licenses in the future, b) whether goods would continue on the Liberalized List or be eligible for importation at all, and c) the date at which licensing would be suspended for the current import period; (2) for Quota List items a) there was the consideration that only one order could be placed during each six-month period – so that inventories had to be sufficient to cover until the next importing period, and b) there was the possibility that imports might be prohibited at a future date as higher-cost, lower-quality domestic capacity came onstream; (3) for both Liberalized List and Quota List imports, the domestic premium was rising rapidly in the latter half of the 1960's, so that investment in inventory for resale or own use was likely to be profitable; and (4) throughout much of the 1960's there was discussion of possible devaluation. Stamp taxes and other charges for imports were increasing, so that expectations of profitability of investment in inventories of imported foods were further enhanced. Excess demand for imported goods therefore made inventory accumulation profitable despite the high guarantee deposit requirements.

The import regime, of course, prevented firms from attaining their desired stocks of imported goods. There were cases where low inventory holdings led to excess production costs due to plant shutdowns or production delays, and other cases where firms incurred the costs of holding higher inventories than they would have under a liberalized import regime.

Thus it was not simply the aggregate level of inventories of imported goods, but the composition of the inventories that led to excess costs. Sometimes very high costs were incurred as a penalty for inadequate inventories. In several cases reported in interviews, bulky materials such as carbon black and copper tubing were air-freighted into Turkey after special permission had been obtained to do so a month or more after the plant had ceased production. Resort to the black market was probably fairly frequent and entailed not only the costs of production delays but also those of inferior-quality items and non-standardized inputs.

There is no means of quantifying the costs incurred by firms whose inventories of imported inputs were suboptimal. However, there is some evidence

to suggest that despite the import regime firms were generally successful in avoiding those costs by holding considerably larger inventories than they would have considered optimal had imports been liberalized. Interviews, a sample of firms' balance sheets, and data on the ratio of investment in inventory to total investments in Turkey compared to other countries all suggest the same result. Interviews with industrialists provided some impressionistic evidence. Businessmen in firms with foreign parent companies were especially vocal on the subject of inventory costs. It was generally claimed that a West European producer would hold inventories adequate for about two months' production, at an average interest cost of 8 per cent. The Turkish counterpart, by contrast, would hold inventories adequate for an average six months' production, at an interest cost of 14 per cent. For domestic producers, the Turkish rate of inflation probably equated the real interest rate with that in Europe. Even so, the real costs associated with an average inventory level three times as high as that incurred under a liberal trade regime certainly constituted, at least in part, an excess real cost of the system. Firms which might otherwise have exported were, of course, at an even greater disadvantage as long as the exchange rate, and foreign prices, remained stable, as the 14 per cent interest charge then constituted a true cost disadvantage.

A sample of thirty-two Turkish firms' balance sheets, as of the close of each firm's 1969 fiscal year, provides some additional information.[5] From each firm's balance sheet, the value of raw materials and other goods used in production – but not its holding of semi-finished and finished products – was calculated. In addition, each firm's net fixed assets were taken. The weighted average ratio of inventories of inputs to net fixed assets was 0.4655, and the unweighted average was 0.5175, thus implying that for the sample firms' inventory investment was approximately half as large as investment in fixed assets.

Data on the composition of gross domestic capital formation in various countries tend to confirm impressions from the sample and from interviews. Table VIII-2 provides estimates of the ratio of investment in inventory to fixed capital investment for a sample of countries. The average ratio for the three years 1966 to 1968 was used, since inventory investment can show sizeable year-to-year fluctuations. As can be seen, Turkish investment in stocks in the three years averaged 15 per cent of investment in fixed capital. That ratio is more than twice that of all countries in the sample except that of Japan and Spain.

Although the high Turkish ratio of inventory to fixed investment cannot be attributed entirely to the trade regime (domestically produced goods were

5. The data were kindly provided by the Industrial Development Bank of Turkey. All firms in the sample had applied for loans from the bank, and most had received them.

Table VIII-2
Ratio of investment in stocks to fixed investment, various countries, 1966 to 1968

| Country | Ratio | Country | Ratio |
|---|---|---|---|
| Australia | 0.080 | Israel | 0.030 |
| Belgium | 0.036 | Italy | 0.038 |
| Brazil | 0.074 | Japan | 0.135 |
| Chile | 0.081 | Korea | 0.060 |
| Denmark | 0.049 | Netherlands | 0.054 |
| France | 0.069 | Spain | 0.107 |
| Germany | 0.025 | Turkey | 0.152 |
| Greece | 0.021 | United Kingdom | 0.030 |
| | | United States | 0.065 |

Note: a) Data for Brazil are for the 1965–1967 period.
b) These data cover *all* inventory investments in all sectors and are therefore not comparable with data from firms' balance sheets.
Source: SPO data for Turkey; *Yearbook of National Accounts Statistics*, United Nations, 1969, country tables for other countries.

part of inventory accumulation, too) there can be little doubt that the import regime was a contributing factor in Turkey's high figure. Unfortunately, Turkish estimates of inventory investment do not go back before 1963. It is therefore not possible to contrast the figures during Phase II with the figures from earlier years.[6] Nonetheless, the very high Turkish figure combined with interview impressions and sample data suggests that inventories were probably substantially higher as a result of the trade regime than they would otherwise have been.

*Underutilized capacity*

Import-substitution policies are usually paradoxical: undertaken to reduce dependence upon imports for final consumption, they can increase dependence upon imports of raw materials and intermediate goods. When import-substitution industries are established they require imports to sustain the flow of production. In the event of "foreign-exchange shortage" not only does final consumption decline, as it would have done in the absence of import-substitution policies, but employment and domestic production can decrease due to the absence of intermediate goods and raw materials required more or less in fixed proportions to the production process. Planners can find themselves on the horns of a dilemma. If intermediate goods necessary for current

6. The average ratio of inventory to fixed capital investment was 0.136 for the period 1963 to 1965.

production are permitted, then capital goods imports to expand capacity are reduced, and the growth process is inhibited. One possible outcome is the underutilization of existing capacity, due to unavailability of imported intermediate goods.

There is no doubt that the Turkish planners were caught in this particular dilemma: as seen in Chapter VI, raw materials imports were systematically underforecast and had to be successively increased. To the extent the flow of raw materials was permitted, the cost was the failure of capital goods imports to rise as rapidly as they would have otherwise. Insofar as raw material imports were restricted to permit additional capital goods imports, excess capacity in existing firms could develop.[7]

In addition to the possibility of excess capacity arising because of smaller-than-desired flows of imports, another factor was important in Turkey and makes estimation of the degree of excess capacity very difficult. It was seen in Chapter VI that import licenses were allocated among industrialists upon the basis of their capacity. Thus incentives were created by the import-licensing system to build additional capacity even if existing capacity was underutilized.[8] Failure to expand when other firms were obtaining capital goods import licenses and expanding could result in a reduced share of the market even if existing capacity was underutilized.

Thus, not only could underutilization of capacity arise because of inadequate raw material imports, it could also result from firms' deliberate overexpansion. Either way, the costs of the excess capacity are clearly attributable to the trade regime.

Difficulty arises because the license-allocation procedure led not only to idle capacity but also to overstating actual capacity. Table VIII-3 gives data reported to the Union of Chambers on capacity utilization for 1966, 1967 and 1969, the only years for which data are available. For each quota number against which license applications were made, the Union reported actual levels of output and capacity. The first column gives the number of quota allocations under which reported capacity utilization was less than 10 per cent. In 1968 18 quotas, or 12 per cent of the quota numbers for which estimates are available, were destined for industries reported working at less than 10 per cent of capacity, and 65 per cent were destined to firms reported operating at less than 50 per cent of capacity. The figures are comparable for 1965 and

7. It should be noted that excess capacity, in the sense used above, implies that producers would expand output at existing input-output prices if they were free to purchase their desired amounts of all inputs at those prices. Other forms of physical excess capacity that would occur as the result of unprofitability of additional production at prevailing prices are not included in the analysis.
8. Jagdish Bhagwati and Padma Desai, *India Planning for Industrialization*, Oxford University Press (London), 1970, pp. 326–7, analyze the same phenomenon for India.

Table VIII-3
Data reported to Union of Chambers on capacity utilization, 1966, 1967, 1969

| | Per cent of Capacity Reported Utilization by Applicants | | | | | | |
|---|---|---|---|---|---|---|---|
| | Less than 10 | 10–25 | 25–50 | 50–75 | 75–90 | More than 90 | Total |
| | Number of quotas allocated | | | | | | |
| 1966 | 18 | 28 | 49 | 27 | 7 | 17 | 146 |
| 1967 | 23 | 35 | 43 | 21 | 6 | 13 | 141 |
| 1969 | 23 | 40 | 38 | 23 | 9 | 15 | 148 |

Notes: a) No definition of capacity is given by the Union of Chambers. They give two entries: (1) total capacity, and (2) capacity utilized in the year indicated. The ratio of the two was computed for the entries in this table.
b) The number of quotas is less than in Table VI-7 because some quotas had multiple uses and no physical measure of capacity was given.
Source: Same as Table VI-7.

1967, with a slightly higher fraction working at less than half of capacity.[9]

If these data were accepted at face value, they would indicate serious underutilization of capacity. While some industries might have been operating below capacity due to strikes or inadequate demand, that explanation cannot cover half the recipients of quota allocations. However, as indicated above, incentives were present to overstate capacity.[10] Once an entrepreneur's capacity was certified, he could sell his equipment and remain eligible for import licenses. Thus in some cases the same physical capacity could be counted two or three times. Moreover, incentives were present to overstate the physical capacity of actually operating equipment.

It is thus difficult to place much credence in the evidence based upon import-license data. Other available evidence suggests that there was excess capacity in some sectors, but that it was not nearly as widespread as the Union of Chambers' data indicates.

In the summer of 1966, at a time when import shortages were believed to be resulting in excess capacity, an AID team undertook an extensive study of the problem. Their conclusions were as follows:

9. Capacity measures are given by the Union of Chambers in physical units, so no meaningful weighting of sectors was possible.
10. A story, told by a friend, may illustrate. A man imported some machinery in the early 1960's. His machinery was inspected and his capacity certified. He then sold the machinery for more than he paid for it. He continues to get import licenses: his profits on resale in each period prior to August 1970 exceeded the initial cost of the machinery.

> The interviews indicated that despite the problems of the import system – and they were and are many – most producers were able to obtain the essential imported supplies needed to operate their factories. Not all firms were operated at or near capacity, but those that were not generally limited to industries which used very large amounts of imported materials relative to their output. This was particularly the case with the assembly industries...Other branches of industry which were adversely affected were wool textiles (which use imported merino wool), canning, and plastics, all of which depend heavily on imported materials...
>
> On the basis of more recent discussions, there is little reason to believe that the situation has changed radically...Although the total level of imports has decreased since 1966, the level of raw materials necessary to maintain total production has not, except for steel products which are now being supplied from Ereğli Steel Mill...[11]

In interviews with businessmen conducted during 1965, 1967, and 1969 this author found only two cases of plant shutdowns and several instances where finished goods – less one or two parts – had to be stockpiled pending receipt of imports. Relatively few interviewees commented upon underutilization of capacity as being a problem, although many complained of having to purchase from small firms at high prices. Similarly, time series production data do not provide any evidence of widespread, persistent, excess capacity.

It seems reasonable to conclude that the import regime led to some overbuilding of capacity and idle capacity in some heavily import-dependent sectors. By and large, however, businessmen avoided the costs of plant shutdown and underutilization by incurring heavy inventory costs.

## *III. Employment, factor proportions, and income distribution*

As seen in Chapter VI, the EER for capital goods fell in the latter half of the 1960's. The decline in the rate was the result of increasing use of "investment incentives," which essentially consisted of the partial or total exemption from or postponement of duties and surcharges otherwise payable on imports. Thus by 1969, with an official exchange rate of TL 9 = $1, a capital good import subject to 50 per cent duty would have cost the importer in excess of TL 18, combining stamp tax, surcharges and production tax, but would have cost him as little as TL 10 if granted total exemption from duties. Thus for those receiving SPO approval of their investment projects, the implicit subsidy on capital goods imports was sizeable.

In theory, subsidization of capital goods imports can have several effects: (1) capital-intensive industries will become relatively more attractive investment alternatives than labor-intensive industries; (2) entrepreneurs who can

11. Lubell *et al., op. cit.* (Note 7, Chap. VI), pp. 96–97.

obtain the subsidy will substitute capital for labor; and (3) there will be a substitution of imported capital goods for domestic capital goods. As a consequence, in a competitive market one would expect the equilibrium wage to be lower and less growth in domestic capital goods industries than would otherwise have occurred. When wages are determined by non-market forces, one would expect that employment opportunities would grow less rapidly than they would in the absence of subsidization of capital goods imports.

The labor market was not free in Turkey. Minimum wages were in effect throughout the 1960's, and the real wage increased at an average annual rate of 2.9 per cent between 1963 and 1969.[12] Thus increases in the real wage would have led to some incentives to substitute capital for labor even if the real price of capital goods had remained constant. As it was, the real price of capital goods imports fell on average about 4.5 per cent per annum. Thus employment and factor proportions were the combined result of the trade regime and of domestic policies with respect to labor. Insofar as the effects predicted by theory are concerned, a rough approximation would be that about two-thirds of any shift probably resulted from the trade regime, and about one-third from domestic labor policies.

In this section the microeconomic aspects of employment and factor proportions and their effects upon income distribution are examined. In Chapter IX estimates of the overall employment effects are presented.

*Employment and factor proportions*

Several pieces of background information will be useful to the reader. Throughout the 1960's Turkey had an excess supply of unskilled labor. It is estimated that 9.5 per cent of the urban labor force and 9.9 per cent of the rural labor force were unemployed in 1967.[13] The impact of unemployment is cushioned, to some degree, in two ways: (1) a large number of Turkish workers are employed in Western Europe, and particularly in Germany;[14]

12. Data are from Duncan R. Miller, "Labor Force and Employment: An Overview," in Duncan R. Miller (ed.), *Labor Force and Employment in Turkey*, USAID, mimeograph (Ankara), 1970, p. 33.
13. SFYP, *op. cit.* (Note 21, Chap. I), pp. 148–9.
14. As of 1970, over a half million Turkish workers were employed in West Germany. In 1965, 9.7 million persons were employed in agriculture out of an economically active population of 13.5 million, leaving a non-agricultural labor force of 3.8 million. Even allowing for labor force growth after 1965, the half million Turks working abroad represent well over 10 per cent of the Turkish non-agricultural labor force. Although Turkey could be placed in an exceedingly difficult situation in the event of a severe recession in Western Europe, the governments have been cooperating to smooth the flow of workers and to avoid the disruptions that could result with sharp changes in European employment opportunities. For an excellent analysis of some aspects of the Turkish workers in Germany, and differential productivity and learning behavior of Turkish workers in the two countries, see Terry D. Monson, *Migration, Experience-Generated Learning and Infant Industries: A Case Study of Turkey*, Ph.D. thesis, University of Minnesota, March 1972.

and (2) family ties are usually sufficiently strong so that the unemployed are supported by their families and thus are not as adversely affected as would otherwise be the case.[15]

In addition to an excess supply of unskilled labor, the number of college graduates in Turkey expanded very rapidly during the 1960's. With relatively few exceptions there was an abundant supply of highly trained manpower. By contrast, however, persons with middle-level technical skills were generally in short supply.[16] In such specialities as glass-blowing, die-casting, repair and maintenance jobs and middle-level technical personnel of virtually every variety, the absence of persons with appropriate skills constituted a major problem.[17]

*Changes in relative factor prices.* Table VIII-4 presents data on the prices of domestic and imported capital goods and on the industrial wage. Ideally, of course, one would like data on the cost of capital services rather than on the cost of capital goods. However, insofar as any data are available they do not suggest any significant changes in the nominal interest rate nor in the return to capital in the period under review; moreover, any changes which did occur were undoubtedly small contrasted with changes in the real price of capital goods.

The first column of Table VIII-4 gives the average daily wage in manufacturing, which more than doubled between 1960 and 1969. The second column gives the TL cost for a dollar's worth of imported capital goods as calculated in Appendix A. Of course, to the extent that the international price of capital goods rose, the EER provides an underestimate of the increase in the domestic price of imported capital goods. However, changes in international prices since 1960 have probably been small relative to changes in the PLD-EER. Column 3 gives the implicit GNP deflator for the manufacturing sector, taken as a proxy for the price of domestically produced capital goods. Column 4 gives the average price of capital goods and column 5 the wage relative to the weighted price of capital goods. The wage rose relative to the price of both types of capital equipment, especially in the latter half of the

15. In the summer of 1971 the author was on the campus of the Middle East Technical University and witnessed 4,000 men applying for eight janitorial and ground maintenance positions. All were healthy, well-fed, and reasonably dressed. Workers applying at the Labor Exchange for permission to go to Western Europe are of similar appearance. The large numbers of applicants attest to the severity of the unemployment problem, while the fact of the family system indicates how that problem can exist without greater unrest.
16. For an analysis of this phenomenon and the reasons for it, see Anne O. Krueger, "Rates of Return to Turkish Higher Education," *Journal of Human Resources*, Fall 1972.
17. See the discussion in the SFYP, *op. cit.* (Note 21, Chap. I), pp. 161 ff.

Table VIII-4
Wage rates and capital goods prices

| | Wage Rate (TL per day) | Capital Goods Prices | | Weighted Capital Goods Price (1965=100) | Wage Relative to Capital Goods Price |
|---|---|---|---|---|---|
| | | Imported (TL per $) | Domestic (1961=100) | | |
| 1955 | 6.87 | 4.10 | 38 | 32 | 2.15 |
| 1960 | 14.11 | 12.11 | 92 | 82 | 1.72 |
| 1961 | 14.88 | 12.55 | 100 | 85 | 1.75 |
| 1962 | 15.73 | 12.54 | 103 | 86 | 1.83 |
| 1963 | 17.21 | 12.99 | 108 | 91 | 1.89 |
| 1964 | 19.07 | 12.99 | 110 | 96 | 1.98 |
| 1965 | 20.66 | 15.50 | 114 | 100 | 2.07 |
| 1966 | 22.66 | 15.50 | 121 | 106 | 2.14 |
| 1967 | 24.75 | 15.29 | 124 | 114 | 2.17 |
| 1968 | 27.47 | 12.26 | 124 | 118 | 2.33 |
| 1969 | 33.98 | 13.16 | 132 | 124 | 2.74 |
| 1970 | 37.40 | | 139 | 133 | 2.81 |

Sources: 1) Wage rate: average daily wage rate of workers in manufacturing covered by social insurance, Social Insurance Institute, *Statistics Annual*, 1955–1969.
2) Imported capital goods EERs from Appendix A.
3) Domestic capital goods: Implicit deflator for the manufacturing sector was taken and linked in 1961 and 1965.
4) Capital goods price: for 1962–1970, implicit deflators from *Yıllı Programı*, 1971 were used. Before that, imported and domestic prices were weighted by their share in machinery and equipment investment.

1960's, and the price of imported capital goods fell sharply relative to the price of domestic capital goods after 1965. We consider first the evidence on use of imported and domestic capital equipment, and thereafter examine the evidence on substitution of capital for labor.

*Imported versus domestic capital equipment.* There are two ways in which one would expect the ratio of imported to domestic capital goods to be affected by the trade regime: (1) the price of imported capital goods relative to the price of domestic capital goods would induce greater use of the cheaper kind, and (2) the availability of foreign exchange for capital goods imports, in the presence of excess demand under quantitative restrictions, would determine the volume of imported capital goods.[18] The first effect is relatively straightforward and would occur in all sectors of the economy, although investment in some sectors would become relatively more attractive than in

18. It should be recognized in what follows that underinvoicing and other phenomena associated with the trade regime might lead to serious problems with the data.

others depending upon the ratio of imported to domestic capital equipment employed in each sector. The second effect is more complex. Within each sector, firms may purchase more domestic capital equipment when they are unable to obtain import licenses. In addition, investment may shift to sectors relatively less dependent upon imported capital equipment as domestic savings are available for the purpose.

McCabe and Michalopoulos investigated the combined effects of foreign exchange availability and relative prices of imported and domestic capital investment for the years 1950 to 1963.[19] As a proxy for the availability of foreign exchange, they used the amount of foreign credit received by Turkey in each year. The use of that proxy seems reasonable since foreign credit, especially in the 1950-to-1963 period, consisted largely of suppliers' credits and project aid, both of which are generally used to purchase imported capital goods.

Their regression equation, and results, were:

$$\log(I_m/I_d) = 2.40 - 0.03\log(P_m/P_d) + 0.26\log(R_e/R_d) - 1.60D$$
$$\qquad\qquad\quad (0.04) \qquad\qquad (2.57) \qquad\qquad (-6.51)$$

$$R^2 = 0.89 \qquad F = 28$$

where $I_m/I_d$ is the ratio of investment in imported to domestic capital equipment (given the unavailability of capital stock figures), $P_m/P_d$ is the ratio of the price of the two kinds of equipment, $R_e/R_d$ is the ratio of external credit to internal credit (the volume of bank loans) and D was a dummy for the post-devaluation years (1959 to 1963).

The McCabe-Michalopoulos results suggest that a 1 per cent increase in foreign credits resulted in a 0.26 per cent increase in the ratio of imported to domestic capital equipment invested. The results are what one would have expected, especially for the period covered by their study, with foreign exchange availability being an important determinant of capital goods imports.

The fact that the relative-price variable is not significant may be the result of the inclusion of the dummy variable for the years after 1958. Since the 1958 devaluation constituted the major change in the relative price of imported capital goods, that variable probably picks up most effects of the relative price changes.

In addition to the McCabe-Michalopoulos results, additional evidence on the effects of the import regime on investment composition can be gained by inspection of the behavior of construction investment relative to total investment over the period. As seen in Chapter II, plant and equipment investment

19. James McCabe and Constantine Michalopoulos, "Investment Composition and Employment in Turkey," *Discussion Paper No. 22*, AID, October 1971.

Table VIII-5
Composition of investment, 1959 to 1969

| | Construction (millions of TL) | Machinery and Equipment (millions of TL) | Total (millions of TL) | Construction (% of total investment) | Machinery and Equipment (% of total investment) |
|---|---|---|---|---|---|
| 1959 | 4,397 | 2,294 | 6,691 | 65.7 | 34.3 |
| 1960 | 4,817 | 2,699 | 7,516 | 64.1 | 35.9 |
| 1961 | 4,917 | 2,926 | 7,843 | 62.6 | 37.3 |
| 1962 | 5,292 | 3,420 | 8,712 | 60.7 | 39.3 |
| 1963 | 6,569 | 3,508 | 10,077 | 65.2 | 34.8 |
| 1964 | 7,381 | 3,186 | 10,567 | 69.8 | 30.2 |
| 1965 | 8,466 | 3,301 | 11,767 | 71.9 | 28.1 |
| 1966 | 10,399 | 4,754 | 15,153 | 68.6 | 31.4 |
| 1967 | 11,931 | 5,331 | 17,262 | 69.1 | 30.9 |
| 1968 | 14,015 | 6,416 | 20,431 | 68.5 | 31.4 |
| 1969 | 16,656 | 6,718 | 23,374 | 71.2 | 28.7 |

Note: SIS data are not consistent with Gürtan's data given in Table II-10 and IV-9 for years for which the series overlap. The source of the discrepancy is unknown.

Source: *National Income 1970, op. cit.* (Table I-2), Table 6.

in Turkey is much more heavily dependent upon imports than is construction investment. Data for the period 1953-to-1958 were given in Table II-10. Table VIII-5 gives data for subsequent years.

It will be recalled that investment in plant and machinery fell from 30.6 per cent of total investment in 1953 to a low of 23.6 per cent in 1957, rising to 26.9 per cent in 1958. As can be seen, the absolute and relative increase in the importance of machinery and equipment investment rose until 1962, reaching 39.3 per cent of total investment in that year. Thereafter investment composition once again shifted toward heavier emphasis upon construction investment. The import stringency of 1964–1965 is clearly reflected in the data, as the share of construction increased to its levels of the mid-1950's. With renewed project credits in 1966–1968, investment in machinery and equipment again increased, but by no means reattained its relative importance of the early 1960's.

The timing of the changes in importance of construction in total investment coincides remarkably closely with the delineation of Phases of the trade regime in Turkey. During Phase II, in both the 1950's and 1960's, investment became increasingly oriented toward those sectors requiring relatively few imported capital goods. During Phase IV of the early 1960's investment shifted toward plant and machinery, despite its price, relatively higher than

in the Phase II episodes. It would appear that the availability of import licenses has been relatively more important than the relative price of imported capital equipment, although both factors have influenced the composition of investment.

*Capital-labor substitution.* The fact that quantitative restrictions on capital goods imports may have offset part or all of the desired substitution between types of capital equipment does not rule out the possibility of substitution of capital for labor on the part of those firms fortunate enough to receive capital goods import licenses and duty exemptions. As seen above, two factors were operative here: the price of imported capital goods fell in real terms, and the real wage rose.

It is difficult to estimate how much substitution of capital for labor in fact took place because the large change in relative factor prices occurred in the late 1960's and the latest available *Census of Manufactures* is for 1963. Demirgil undertook a variety of tests on data for the public sector for the periods 1939–1963 and 1949–1963 and found some statistical evidence of capital-labor substitution,[20] although productivity growth dominated the data.

McCabe and Michalopoulos extended their analysis to investigate the relationship between the labor share of value-added and the ratio of imported capital goods investment to total investment. They used the wage share, in the absence of better data, as a proxy for the labor intensity of each sector. Their data were cross-section data from the 1963 *Census of Manufactures.* Their results were:[21]

$$W/V = 0.43 - 0.20(I_m/I)$$

$$R^2 = 0.10 \qquad F = 6.1$$

where $W/V$ is the labor share in value added, and $I_m/I$ is the share of imported equipment in total equipment investment. In their model, the coefficient on the term $I_m/I$ reflects the difference between the labor shares in processes using domestic and imported capital equipment.[22] Substituting the

20. Demir Demirgil, "Factors Affecting the Choice of Technology in Turkey and Implications for the Level of Employment," in Miller (ed.), *op. cit.* (Note 12).
21. McCabe and Michalopoulos, *op. cit.* (Note 19), pp. 6–8.
22. The total capital share is a weighted average of the capital coefficients corresponding to the two types of capital stock: $(1 - W/V) = K_m/K\,(1 - b_m) + (1 - K_m/K)\,(1 - b_d)$, where $b_d$ and $b_m$ are the labor shares in the two processes. By manipulation, the percentage difference in the capital-labor ratio of two sectors $(\Delta L/K)/(L_m/K_m)$ is:

$$\left(\frac{b_d/(1-b_d)}{b_m/(1-b_m)} - 1\right) \times 100\,.$$

results of the regression estimate, they estimated that the labor share in value-added was 43 per cent in processes using domestic capital goods and 23 per cent in processes using imported capital equipment. Thus if wages are equal across sectors, employment would be twice as great per unit of investment in domestic capital equipment as it would be in foreign.[23]

Both the McCabe-Michalopoulos data and the Demirgil data are for the period ending in 1963. With the amount of structural change in Turkey between the earlier years and the 1960's, their results do not necessarily reflect the degree of capital-labor substitution during the 1960's. In the absence of recent Census data, Öngüt investigated the extent of capital-labor substitution on the basis of information from investment projects financed by the Industrial Development Bank of Turkey.[24] He found that businessmen generally regarded the choice of technology as given, although

> ...it is also quite likely that because investors do not have an incentive in adopting labor-intensive techniques, they do not explore the availability of less expensive, less modern and more labor absorbing equipment.[25]

There was considerable evidence, however, that substitution was possible in a variety of ancillary operations. There was a "marked tendency to replace labor with automatic machinery" for those operations.

Öngüt found that in cases where a variety of techniques were available to choose from, the capital-intensive technique was invariably chosen. In one case, a firm with an existing plant and 600 employees wished to double their capacity. Investment was 50 per cent greater than in the earlier, labor-intensive factory, and employment was 106 workers, contrasted with the 600 in the older factory. The present value of the two alternative expansion patterns was computed under alternative assumptions. Including all investment incentives and evaluating both investments at existing prices, the present value of the capital-intensive factory was TL 7.1 million, and that of the labor-intensive factory TL 6.14 million. Excluding investment incentives and adjusting capital goods imports to a shadow rate of foreign exchange of TL 15 = $1, both projects had negative present values although the labor-intensive project was the more attractive of the two. With wages constant (contrasted with a projected 10 per cent annual rate of increase upon which the firm had based its expansion plans), no investment incentives, and the shadow exchange rate, the present value of the labor-intensive project was TL

23. McCabe and Michalopoulos also found that output per man was lower with use of domestic capital equipment, but that total value-added per unit of investment would be higher.
24. İbrahim Öngüt, "Economic Policies, Investment Decisions, and Employment in Turkish Industry," in Miller (ed.), *op. cit.* (Note 12).
25. *Ibid.*, p. 93.

5.6 million while that of the capital intensive project was negative at minus TL 0.5 million. Öngüt noted that the choice of the labor-intensive project would have created more than 500 additional jobs, since the foreign exchange saved on the project by choice of the labor-intensive technique would have been used to import other capital goods, with additional employment opportunities thereby created.[26]

In Chapter IX estimates of the employment effects of import-substition for the manufacturing sector as a whole will be given, based upon existing capital-labor ratios in each sector. It should be borne in mind that the substitution of capital for labor which might occur within each sector is not included in the estimates and that therefore the macroestimates probably underestimate the total employment effects of the trade regime and import-substitution policies.

*Income distribution*

There can be little doubt that the Turkish trade regime resulted in nonoptimal resource allocation with consequent losses in the attainable bundle of goods and services available for society's utilization. One defense sometimes given for nonoptimality in the economic efficiency sense is that income distribution may be altered in socially desired ways which cannot be attained by first-best measures.

In Turkey, as in many developing countries, one of the development goals has been a "fair distribution of income."[27] In this section consideration is given to the income-districutional effects of the Turkish trade regime. It will be seen that by and large the trade regime altered income distribution only within groups, and that the alteration which did occur was generally questionable on social grounds. Thus Turkish trade policies were non-optimal on both efficiency and equity grounds.

Evidence on Turkey's income distribution is so fragile that any inferences drawn with respect to changes over time would be perilous. Nonetheless, there are strong *a priori* grounds for believing that the effects of Turkey's trade regime on overall income distribution have probably been slight. Moreover, such effects as did result were probably in the nature more of redistribution within the middle and upper income groups than of a transfer between groups.

*Export versus import-competing interests.* In an exchange-control regime with currency overvaluation, theory predicts that potential exporters

26. Öngüt, *op. cit.* (Note 24), Table 1.
27. FFYP, *op. cit.* (Note 20, Chap. I), p. 43.

will be adversely affected relative to those whose interests lie in import-competing production. In Turkey, however, the major exporting interests are in agriculture and mining. The effect for agriculture of any redistribution away from exporting interests that might have resulted from currency overvaluation was largely offset by the government's price policies toward agriculture. As seen in Chapter VII, price intervention by the various state agencies and cooperatives resulted in severing the relations between the real exchange rate and the price received by farmers for wheat, tobacco, figs, raisins and hazelnuts. For those commodities, which constitute the bulk of agricultural exports, the chief determinant of prices was the nature of the price support program and not the real exchange rate.

For agriculture as a whole the evidence suggests that its term of trade improved gradually from 1950 to 1953, and remained fairly constant until about 1968, the latest year for which data are available.[28] Thus neither on *a priori* grounds nor on the basis of agriculture's terms of trade is there any evidence to suggest that agriculture suffered relative to industry. Within agriculture, it is probably the case that the farmers of the coastal plains, producing the citrus fruit, cotton, olive oil, vegetables, etc., suffered relative to what their position would have been under a unified exchange rate. However, there was some offset in that (1) those commodities were subject to more favorable exchange rates in the 1950's than were the traditional commodities, and (2) in the late 1960's the export rebates partially compensated for the overvalued exchange rate. Even taking these factors into account, however, agricultural income and output in the coastal region was less than it would have been under different exchange rate policies: agricultural exports from the coastal areas were highly responsive to price changes (as seen in Chapter VII), and the DRC of output expansion in that region would have been relatively low. Since the fertile coastal region has a per capita agricultural income well above the Turkish average, agricultural incomes may have been slightly more evenly distributed as a result of discrimination against exports, but the effect was very small and more than offset by government subsidies on grains.

The second export sector in which adverse income distributional consequences might have been expected was the mining sector. There can be little doubt that mining activity was stagnant and even declining in response to the erosion of the real exchange rate. However, in terms of the personal income distribution it is not clear that there would have been any effect: most mining enterprises are state-owned. During the 1950's Central Bank credits covered most of the SEE deficits, with the result that the incidence of the losses was spread over the entire community. Although a more rapid expansion of

28. Nur Keyder, "Türkiye'de Tarımsal Reel Gelir ve Köylünün Refah Seviyesi," *METU Studies in Development*, Fall 1970, p. 38.

mining activities might have led to greater employment in that sector, the effect thereof could not have been significantly different from that of growth of other sectors.

Thus the groups that theory suggests would lose through currency overvaluation were fairly well protected through the government's absorption of the losses that would otherwise have resulted. In the absence of these domestic policies, the efficiency losses resulting from currency overvaluation and suboptimal levels of production for export would have been accompanied by redistribution from agriculture and mining. Since the same income distribution could have been achieved by higher export EERs, a unified exchange rate would have achieved superior resource allocation without adverse effects on income distribution.

The groups that theory predicts would gain from currency overvaluation and exchange control are the import-competing producers and the recipients of import licenses. Many of the apparent gains were unreal here, as businessmen entered into import-competing production activities who would have entered into production of manufactured goods for export under alternative exchange-rate policies. Moreover, under a unified exchange rate, there would have been considerably greater imports of finished goods than in fact occurred. Importers who received windfall gains on their import licenses would otherwise have had a greater volume of business.

As seen in Chapter VI, there was a significant and important conflict between importers and industrialists. The conflict was natural and real, although it centered over which group was to receive the gains. New import-substitution firms received import licenses as soon as they emerged, and therefore obtained the premia associated with those import licenses. Such a development came at the expense of the importers who had previously dealt with the commodity. Thus importers of television sets, for instance, were forced to find another line of business or to close down when domestic production of television sets started. Because importing was such a profitable undertaking, the losses experienced by the importers were large. Some responded by starting their own import-substituting enterprises. Others contracted their operations, and changed the type of goods imported as new domestic production capabilities arose.

The importers were sometimes able to slow down the rate at which goods disappeared from eligible import lists, but they were unable to stop it. The economic and political power of the importers declined gradually throughout the twenty-year period and conversely, that of the industrialists gradually rose. By 1970 it was evident that the power of the importers was largely spent and that the industrialists as a group had gained the ascendancy.

*Functional shares.* It is likely that the incidence of the trade regime on

functional income distribution was small and was felt primarily through changes in distribution within groups rather than between them. The importer-industrialist conflict was one such case and has already been discussed.

During the 1950's the share of those on fixed salaries declined. Indeed, the FFYP declared that one of the major detrimental effects of the 1950's was that of altering the income distribution in an "unjust" direction.[29] That effect, however, was the result of inflation rather than of the trade regime.[30]

Probably the largest effect of the trade regime was on the distribution of labor income. As will be seen in Chapter IX, the import-substitution industries generally paid higher wages, required skilled workers, and offered fewer employment opportunities than did the traditional and export-oriented industries. Minimum wage legislation also contributed, since the import-substitution firms, being large and visible, could evade it less easily than the smaller, relatively labor-intensive traditional firms.

The consequent increase in demand for skilled workers undoubtedly raised the wages of those men relative to those of the unskilled. The fact that demand for unskilled labor rose more slowly than under an alternative trade regime probably meant fewer employment opportunities, rather than lower wages, in the presence of minimum wage legislation.

The incidence of fewer employment opportunities for unskilled workers was on the urban unemployed and those in rural areas who would have migrated if employment had been available. Insofar as there would have been more migration, per capita incomes in the agricultural sector might have been higher had urban employment increased more rapidly.[31] Regardless of whether it was the urban unemployed or potential migrants who were adversely affected, the income-distributional effect was to increase the labor income accruing to one group and reduce the labor income going to another. Without quantitative evidence to estimate the magnitude of the increase in skilled workers' incomes and the elasticity of demand for unskilled workers, it is not possible to estimate whether labor income increased or decreased. With the two changes in offsetting directions, however, it is likely that any change in aggregate labor income was relatively small.

29. FFYP, *op. cit.* (Note 20, Chap. I), p. 22.
30. Even in 1971, many Turks cited the fact that some people made large fortunes from the trade regime in the 1950's as one of the greatest evils of that period. It is likely that the gains accrued to those already in the upper income group at the expense of others in that group who were adversely affected by economic policy. Redistribution was primarily among sources of profit, rather than between functional groups.
31. The disparity between urban and rural living standards appears to have narrowed. The ratios of urban to rural per capita income were: 1950, 6.0; 1955, 5.7; 1960, 4.8; and 1965, 5.1. Merih Celasun, "Prospective Growth of Non-agricultural Employment in Turkey," in Miller (ed.), *op. cit.* (Note 12), p. 159.

*Public sector versus private sector.* Both the administration of the trade regime and import-substitution policies somewhat favored the public sector at the expense of the private sector. Most important was the degree to which public and private firms had differential access to scarce foreign exchange. Public sector firms were probably at an advantage in obtaining import licenses because of their relatively greater representation on committees responsible for allocating foreign exchange. In the 1950's, SEEs were often exempt from paying surcharges and duties on their imports; even when they were not, the duties and surcharges frequently were left unpaid, as the SEEs were unable to meet their financial obligations. As was seen in Part Two, the SEEs were not required to pay the new *de facto* exchange rate for almost a year after August 1958 and continued to obtain their imports at TL 2.80 per dollar while the private sector was paying TL 9 per dollar.

In the 1960's SEEs were not subject to guarantee deposit requirements, whereas private sector firms were. Also, the fact that much of the heavy import-substitution investment was undertaken by the public sector led to a direct increase in the relative importance of SEEs.

But none of these effects need necessarily have resulted from the trade regime or from import-substitution policies. SEEs could have been subjected to the same treatment as private firms with no alteration in the nature of the regime. It seems more reasonable to interpret the treatment of the SEEs as the result of deliberate government policy: since the import regime was there anyway, it was one of the instruments used to attain the government's goals with regard to the relative importance of the two sectors.

In summary, the subsidization of capital goods imports combined with rising real wages due to domestic policies created a bias toward use of imported machinery and capital-intensive processes. Except for the relative wages and employment opportunities of skilled and unskilled workers, there is little evidence that the income distribution was significantly affected by the trade regime, as government policies with respect to agriculture offset the effects that might otherwise have occurred.